XXXVIII.—*On a new Species of* Phreatoicus *from Tasmania.*

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[Plate XI.]

The specimens described in the following paper were received from Mr. Augustus Simson, of Launceston, who collected them in the Great Lake, Tasmania. This lake lies at an elevation of about 3880 feet above sea-level. Mr. Simson was unfortunately unprovided at the time with suitable material or apparatus for preserving Crustacea; consequently the specimens were put away to dry, and reached me in a more or less mutilated condition.

In a paper on Tasmanian Crustacea* published in the last volume of the Proc. Roy. Soc. Tasm. p. 76, I mentioned having found among specimens taken on the summit of Mount Wellington a single example of *P. australis*, Chilton. There is little doubt that the specimen referred to was merely a young form of the present species. I find that the young of *P. tasmaniæ* resemble the adult form of *P. australis* in the comparative smoothness of the body and the shortness of the telson, while the adults are very distinct, their body being so characteristically spinose and the uropods so much longer.

The occurrence of the three forms of this peculiar genus in the three adjacent and yet widely separated regions of New Zealand, South-east Australia, and Tasmania is of great interest from a geographical point of view; but beyond recording the fact it is not safe as yet to generalize on it, as very little is known concerning the crustacean fresh-water fauna of any of these countries.

The following is a description of this very distinct form:—

Phreatoicus tasmaniæ, sp. n.

Surface of body in the adult specimens more or less covered with acute spines and tubercles, which, on the head and thoracic portion of the body, are particularly numerous on the dorsal surface, and are arranged in two or three rows crossing the segments from side to side. In the abdominal segments they are most abundant on the margins. The females are somewhat smaller and less spinose than the males,

* 'Papers and Proceedings of the Royal Society of Tasmania' for 1892, p. 45.

while in the young the spines and tubercles are almost wanting, there being only a few scattered hairs on the body, as in *P. australis*.

Eyes rounded and prominent, much larger than in the Australian species. First pair of antennæ with peduncle of three joints and a seven-jointed flagellum, the last joint minute. Second pair of antennæ and first pair of legs resembling the same organs in *P. australis*.

Last segment of abdomen ending in a long narrow telson, which is completely coalesced with it and which is furnished with a few spines on its upper surfaces and bears a small tuft of spines and setæ at its extremity.

All the legs are more or less spinose. Sixth and seventh pairs of legs long, reaching as far as or beyond the extremity of the pleon. Uropoda large, reaching beyond the pleon, margin spinose, rami unequal, as long as the peduncle and very acute.

Length of the largest male specimen a little over ½ inch.

Colour of dried specimens light brown or greyish.

In general form this species approximates to *P. australis*, and as the latter has been very fully described by my friend Dr. Chilton, I will make my description conform with his species.

Seen from above the front margin of the head is evenly concave, the rather prominent round eyes being very close to the front and separated by about half the width of the head from one another. These organs are relatively rather large and have from fifty to seventy lenses. Below the eyes is a groove running back nearly to the posterior margin of the cephalic segment, and serving to separate off a distinct, nearly rectangular, lateral lobe. The thoracic and abdominal segments and their epimera on the whole resemble those of the Australian species, only spines replace the setæ. In my dried specimens a spinous ridge occurs close to the anterior and posterior margin of each segment of the thorax. The telson also is a very prominent feature, being quite as long as the segment which bears it. In Pl. XI. fig. 1 the telson appears to be separated from the last abdominal segment by a very distinct articulation; this, however, is due only to the point of view, there being a slight prominence on each side of it, which hides the base in lateral view. In fig. 6 the complete coalescence of the telson with the segment which bears it is seen.

The first pair of antennæ reach to about the middle of the fourth joint of the peduncle of the second pair. The peduncle consists of three joints, of which the second and third are

subequal and are longer and more slender than the first. The flagellum is almost as long as the peduncle and consists of seven joints, the last being very minute.

The second antennæ resemble those of *P. australis*, the flagellum consisting of about twenty joints and somewhat exceeding the peduncle in length.

The upper and lower lips and mandibles appear to be very like those of *P. australis*. Both pairs of maxillæ appear also to approximate very closely to that species, only in the first pair the teeth are smooth in the dried specimens, while in the second pair all the setæ seem to be simple, not pectinate, as those on the first lobe are described by Dr. Chilton.

The maxillipeds differ slightly from those of the Australian form. The epipodites, which act together as a cover to the other mouth-organs, bear two or three long and a number of short spines on their margins. The plate on the basos which stands at right angles to the surface of the rest of the maxilliped, and projects beyond the base of the ischium, is very densely setose along its inner margin. I failed in most of my specimens to detect the three hooked spines which in *P. australis* serve, as Dr. Chilton considers, to keep the two maxillipeds together; but as I have found them in one, I think they must occur in all, only in the others they have probably been broken off, all the parts being in a very dry and brittle condition. The meros is long and slender and bears about seven long setæ at its apex. The rest of the limb is as in *P. australis*, except that there are no setæ on the outer margin of the dactylos, which is quite smooth.

The thoracic legs resemble those of the Australian species. Owing to the condition of my specimens I could not make out the structure of the pleopoda at all satisfactorily.

The uropoda are very strongly developed and reach considerably beyond the telson. The outer ramus is about as long as the basal portion, the inner ramus somewhat longer. The base seems to have a deep longitudinal groove on its upper surface and carries a double row of spines along each edge of this; the rami each bear two or three strong spines on their upper surface and one small seta-like spine near their acute apex.

EXPLANATION OF PLATE XI.

Phreatoicus tasmaniæ.

Fig. 1. Adult male, × 6.
Fig. 2. Head and first pair of antennæ as seen from above, × 26.
Fig. 3. Antenna of second pair, × 15.
Fig. 4. Maxilliped, × 26.
Fig. 5. First thoracic foot, × 20.
Fig. 6. Telson and uropod, × 12.